

REMARKS

Claims 11-17 are active. Claims 1-10 and 18 have been withdrawn from consideration. The Abstract has been shortened and the indent removed. Claims 13 and 16 have been revised to refer to “average molecular weight” finds support in the ranges disclosed on page 47 of the specification and would be immediately apparent to one of ordinary skill in the polymer arts in view of the disclosure. No new matter has been added. Definitions for substituents such as R^{AF} , R^{BF} , R^{CF} and R^{DF} have been added to Claims 11 and 13. Support for these definitions is found in the original claims, e.g., Claim 1 and in the specification, e.g., on pages 4-5.

The Applicants thank Examiner Hu for the courteous and helpful interview of August 3, 2006. Applicants were encouraged to point out the structural and functional differences between the prior art compounds and those covered by the claims and explain any unexpected functional properties attributable to the structural differences in the claimed compounds. Applicants agreed to review the claims for antecedent basis for particular terms and for clarity.

Restriction/Election

The Applicants previously elected with traverse Group III, Claims 11-17. This requirement has now been made FINAL.

Abstract

The objection to the Abstract is now moot.

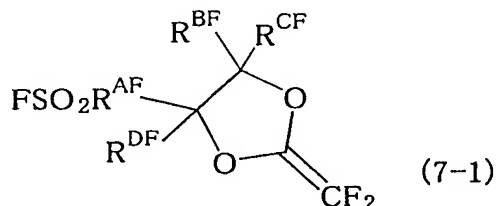
Rejection—35 U.S.C. §112, second paragraph

Claims 13 and 15 were rejected under 35 U.S.C. 112, second paragraph as being indefinite. This rejection is moot in view of the amendments above. Claims 13 and 16 both refer to molecular weights.

Rejections—35 U.S.C. §103

Claims 11-17 were rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuya et al., JP 05213929, in view of Connolly et al., U.S. Patent No. 3,282,875 and as being unpatentable over Okazoe et al., U.S. Patent No. 6,586,626, in view of Connolly et al., U.S. Patent No. 3,282,875.

The cited prior art does not disclose or suggest the compound of formula 7-1 required by the products and processes of the present claims. Unlike the prior art compounds, this compound contains a fluorosulfonyl group (-SO₂F).



Based on the English abstract and first page of the Japanese-language patent, the R1 group of Kazuya does not appear to correspond to -SO₂F, nor does Compound Ve-50 shown in Example 27 (col. 37) of Okazoe contain -SO₂F. Connolly does not disclose the compound of formula 7-1 either, but was cited as teaching preparation of copolymers from fluorosulfonyl-containing monomers. While Connolly describes fluorosulfonyl-containing monomers, it provides no motivation for adding a fluorosulfonyl group to the compounds of the primary references or that would impart any beneficial characteristics on the compounds described by the primary references. Thus, there is no suggestion in the prior art for

substituting a fluorosulfonyl group at the position shown in formula 7-1 into a prior art monomer and using such a monomer to produce a polymer.

Furthermore, even if the prior art did generally suggest such a substitution; it does not provide a reasonable expectation of success that polymers of the compound of formula 7-1 would exhibit superior functional properties.

On the other hand, the Applicants have demonstrated that the compound of formula 7-1 can be used to produce polymers which have superior functional properties. These properties are disclosed in the specification on page 50, line 22 *et seq.* and include “excellent adhesion to other substrates”, “high refractive index” and optical properties. Importantly, such polymers have a large ion exchange capacity attributable to chemically converting the fluorosulfonyl group of the polymer to a group such as a sulfonic ($-\text{SO}_3\text{H}$) group.

The functional properties of polymers produced using compound of formula 7-1 are also disclosed by US2005/266291A1. Examples, such as Examples 5 and 6 of this published U.S. application show that a polymer obtained by hydrolysis of a polymer which corresponds to the polymer of the compound (7-1) has a high softening point and a large ion exchange capacity attributable the compound (7-1). These examples also show that the above polymer is useful as a material for a solid polymer electrolyte.

Accordingly, as the cited prior art does not disclose the structure of the monomer of formula 7-1, suggest selecting such a monomer for producing polymers, nor the superior functional properties of polymers produced by the claimed method, the Applicants respectfully request that this rejection be withdrawn.

CONCLUSION

In view of the above amendments and remarks, the Applicants respectfully submit that this application is now in condition for allowance. Early notification to such effect is earnestly solicited.

Respectfully submitted,

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